



### THE INCIDENCE AND ROLE OF DRUGS IN FATALLY INJURED DRIVERS

While the evidence mounts that alcohol causes motor vehicle crashes, the evidence regarding drugs other than alcohol is less clear. Small scale crash studies have found varying degrees of drug use in serious and fatally injured drivers. The National Highway Traffic Safety Administration (NHTSA) sponsored a study carried out by Calspan Corporation to determine the incidence of drugs in drivers in serious crashes nationwide, and to assess the role drugs play in crash causation.

The study focused on fatally injured drivers who died within four hours of the crash. Blood specimens were collected from a sample of 1,882 fatally injured drivers from 13 sampling sites, encompassing three entire states (Massachusetts, North Carolina, and Wisconsin), and selected counties in California, Nevada, Texas, and Virginia.

In addition to alcohol, the blood specimens were assayed for the presence and concentration of major drugs of abuse, including marijuana, cocaine, amphetamines, phencyclidine (PCP), LSD, and heroin; and common prescription drugs, including benzodiazepine tranquilizers, sedatives, antihistamines, antidepressants, narcotic analgesics, and antipsychotics. The resulting data were analyzed to determine the relative incidence of individual drugs and alcohol/drug combinations, as well as differences in drug prevalence associated with driver, vehicle, and environmental factors.

Accident reports from the police and the Fatal Accident Reporting System (FARS) were also obtained. These reports became part of a previously validated *responsibility assessment* procedure to determine how much each fatally injured driver was responsible for the crash. The drivers were divided into groups according to drug usage (e.g., *drug free*,

*alcohol alone, cocaine alone, alcohol and cocaine combination*). For each group, a crash responsibility rate (number of drivers responsible for the crash divided by the total number of drivers) was calculated, and *responsibility rate* comparisons were made between the drug free group and the various drug groups. If a class of drugs contributed to crashes, then the crash responsibility rate of that class of drugs should be higher than that of the drug free group.

#### Drug Incidence Results

- Alcohol was found in 52 percent of fatalities.
- Drugs other than alcohol were found in 18 percent of fatalities.
- 64 percent of drug cases also had alcohol.
- A drug was detected without alcohol in 6.3 percent of fatalities.

#### Most Frequently Occurring Drugs

	Alone	With Alcohol	Other Comb.	Total
Marijuana	1.1%	5.1%	.5%	6.7%
Cocaine	.5%	4.3%	.5%	5.3%
Tranquilizers	.8%	1.8%	.3%	2.9%
Amphetamines	.7%	.9%	.3%	1.9%

- Abuse drugs (e.g., marijuana, cocaine) were found most frequently in the 25-54 age group.
- Marijuana and cocaine were found more frequently in urban crashes than in rural ones.
- Prescription drugs were found most frequently in the over 55 age group.
- Drugs were found mostly in males.
- Regional differences: *Amphetamines* were found nearly exclusively in California; *Marijuana/cocaine* were unusually prevalent in Dallas, TX; and Wisconsin had the lowest abuse drug involvement.





## **Responsibility Analysis Results**

### ***Single Drug Use***

- The differences in crash responsibility rate between all of the frequently occurring drug groups and the drug free group were found to be statistically insignificant.
- The alcohol group was divided into two subgroups: Low BAC  $< .10$  and High BAC  $\geq .10$ . Both groups showed a significantly higher crash responsibility rate than the drug free group.
- Over 90% of drivers who had BACs  $\geq .08$  were responsible for their crashes.

### ***Multiple Drug Use***

- All of the high BAC/drug combination groups, except for amphetamines, had significantly higher crash responsibility rates than the drug free group, but were not significantly different from the high BAC only group. This suggests that high levels of alcohol are primarily responsible for the increased crash risk.
- Analysis of the low BAC/drug combination groups was limited by very small sample sizes. Some of the crash responsibility rates associated with these groups appeared substantially higher than the low BAC only group, however, these differences were statistically insignificant.
- Crash responsibility rates increased significantly as the number of non-alcohol drugs in a driver increased. Thus, the more drugs a driver takes, the greater the crash risk.

- A logistic regression analysis that combined certain drug groups to increase sample size and control for potentially confounding variables such as age, found that combining certain drugs with alcohol appeared to raise the chances of responsible crash involvement above that for alcohol alone.

## **Conclusions**

Alcohol is the predominant drug problem. Alcohol, at intoxication levels, was by far the most prevalent substance, and drivers with alcohol had the highest crash responsibility rates. Other drugs were found in a sizable percentage of the fatal sample (approximately 18%). However, the *responsibility analyses* suggest little relation between drug use and crash risk. Given the small sample sizes for the various drug classifications, NHTSA believes that caution should be exercised in drawing definitive conclusions from these analyses. Drugs appear to offer the most hazard potential when combined with other drugs although this situation occurred very infrequently. Also, there appears to be some potential for increased crash risk when certain drugs are combined with alcohol. One final point is that the results from this study only apply to fatally injured drivers. More information is needed regarding drug presence and causal influence in injury and property damage crashes before definitive conclusions about the drugged driving problem can be stated.

For additional information about this project, contact:  
Office of Program Development and Evaluation,  
NHTSA, NTS-32, 400 Seventh Street, S.W.,  
Washington, DC 20590.

U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
Administration**

400 Seventh Street, S.W. NTS-33  
Washington, DC 20590

**TRAFFIC TECH** is a publication to disseminate information about traffic safety programs, including evaluations, innovative programs, and new publications. Feel free to copy it as you wish. If you would like to receive a copy contact:  
Linda Cosgrove, Ph.D., Editor, Evaluation Staff  
(202) 366-2759

**FORWARDING AND ADDRESS  
CORRECTION REQUESTED**

Official Business  
Penalty for Private Use \$300